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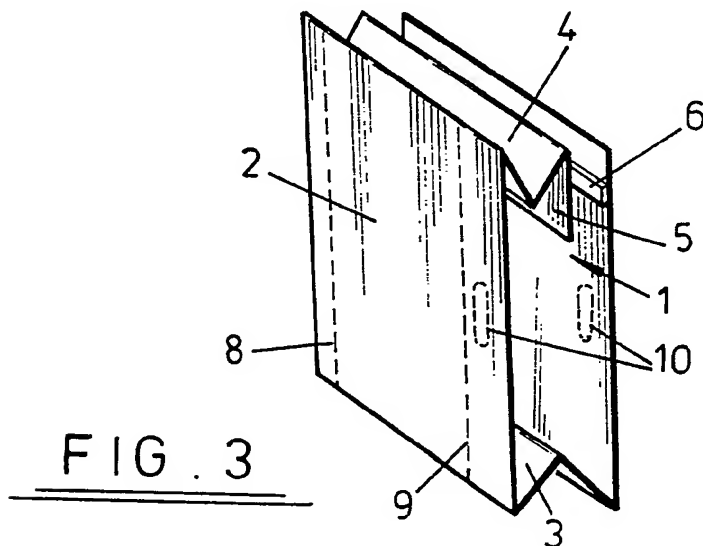
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U1S S1216**

(56) Documents cited
**GB 2128164 A GB 1604156 A GB 1086690 A
GB 0840350 A**

(58) Field of search
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INT CL⁵ **B65D 30/10 30/20 33/18 33/20**

(54) **A flexible bag**

(57) A flexible bag comprises a front wall (1), a rear wall (2) and a bottom gusset (3) linking the lower edge of the front wall (1) to the lower edge of the rear wall (2). The side edges of the front and rear walls (1, 2) are interconnected such that an open-top compartment is defined between the walls (1, 2). An upper gusset (4) is formed on the upper edge of the rear wall (2), and a flap (5) is formed on the edge of the upper gusset (4) remote from the rear wall (2). An adhesive strip (6) extends adjacent the upper edge of the front wall (1) to adhere the flap (5) to the front wall (1) after filling the bag. In use, after filling the bag with an article the upper gusset (4) is extended over the article and the flap (5) is tucked down between the article and the inner surface of the front wall (1). The flap (5) is then adhered to the front wall (1), thus closing the compartment giving the effect that the front and rear walls (1, 2) are joined top and bottom by gussets (3, 4). The bag may have hand-holes (10).



At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1990.

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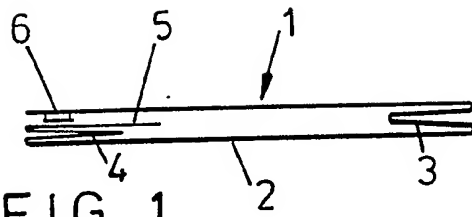


FIG. 1

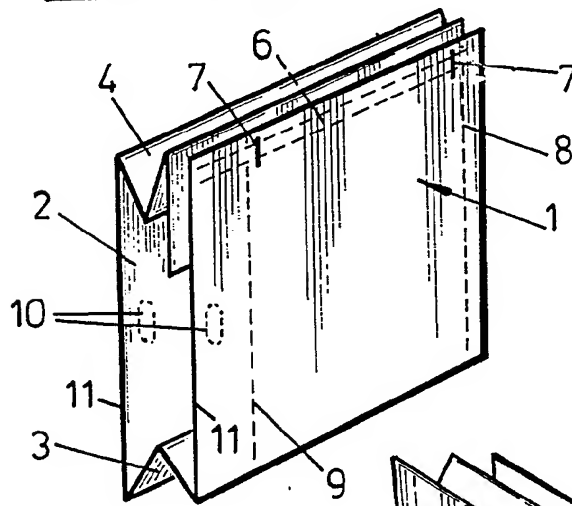


FIG. 2

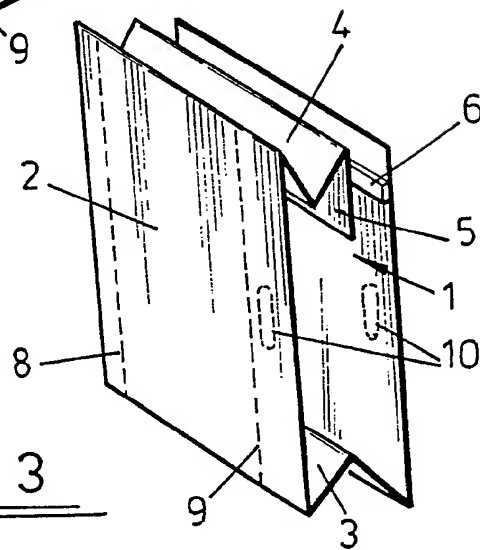


FIG. 3

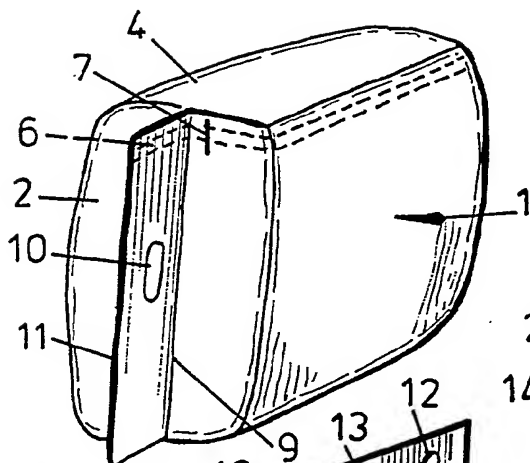


FIG. 4

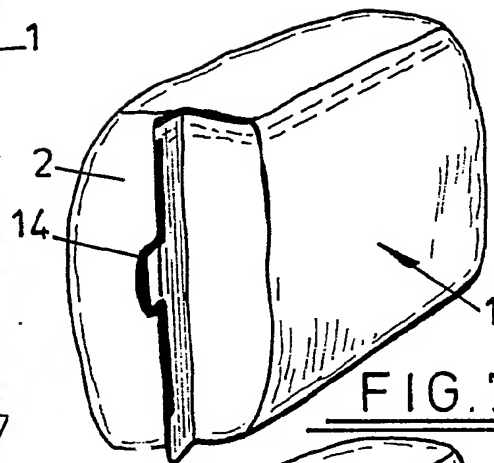


FIG. 7

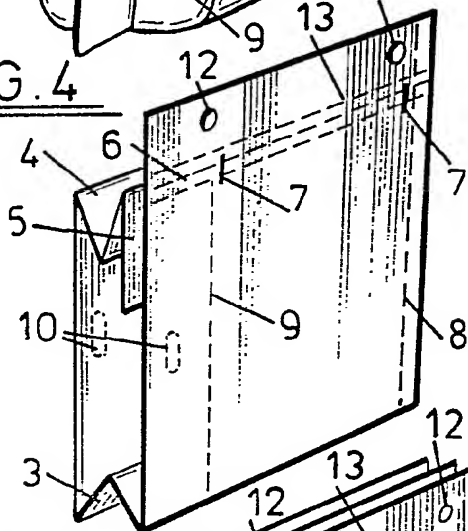


FIG. 5

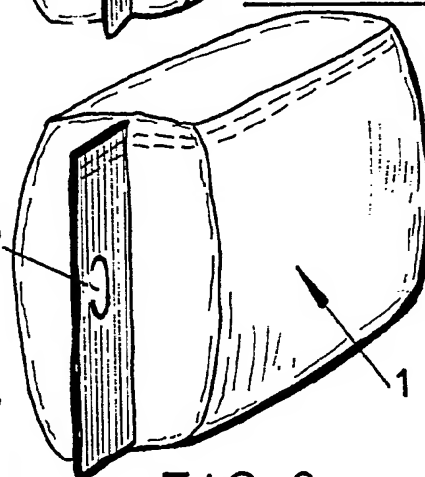


FIG. 8

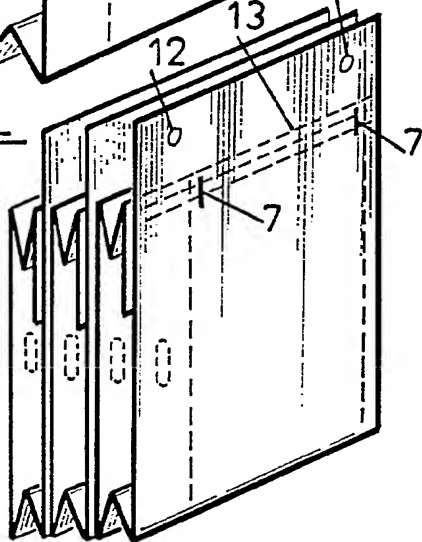


FIG. 6

FLEXIBLE BAG

The present invention relates to a flexible bag.

It is well known to package articles in bags formed from plastics film material. Generally such bags are open-topped and have front and back walls which are interconnected along their side and bottom edges to define an open-topped compartment therebetween. Gussets may be provided between the front and rear walls to enable expansion of the bag when it is filled.

One known flexible bag is described in published British patent specification No. 2204015. The described bag has a front wall, a rear wall, and a bottom gusset linking a lower edge of the front wall to a lower edge of the back wall. The two side edges of the front and rear walls are interconnected such that an open-topped compartment is defined between the walls. An upper gusset is formed between the upper edges of the front and rear walls and slit midway between the edges of the front and rear walls. The width of the slit gusset is greater than the width of the unslit bottom gusset. In use, the bag is filled by pushing a bulky item such as a duvet through the slit gusset. Filling the bag expands it to the width of the narrower bottom gusset. Thus the slit upper gusset can be pulled over the filling, the slit edges of the gusset overlapping to protect the filling.

It has been found that although the overlapping edges of the split gusset do overlap they do not provide a reliable barrier against contamination of the filling. According it is an object of the present invention to provide an improved flexible bag.

According to the present invention there is provided a flexible bag comprising a front wall, a rear wall and a bottom gusset linking a lower edge of the front wall to a lower edge of the rear wall, side edges of the front and rear walls being interconnected such that an open-top compartment is defined between the walls, wherein an upper gusset is formed on a upper edge of the rear wall, and a flap is formed on the edge of the upper gusset remote from the rear wall.

Preferably, means are provided to adhere the flap to the front wall after filling of the compartment. The adhering means may comprise an adhesive strip extending adjacent an upper edge of the

front wall. The adhesive strip may be provided with a removable cover strip which is removed after filling of the bag.

A handle may be provided along one of the side edges of the bag.

In use, after filling the upper gusset is extended over the article placed within the bag and the flap is tucked down between the article and the inner surface of the front wall. The flap is then adhered to the front wall, thus closing the compartment giving the effect that the front and rear walls are joined top and bottom by gussets.

The bag when filled may have a generally circular or rectangular cross section, the filled shape being dependent upon the nature of the inserted article and the way in which the front and rear walls are interconnected.

The upper edge of the front wall may terminate at the same level as the upper edge of the rear wall or may extend therebeyond to provide an area in which holes may be punched to facilitate hanging the bags on pins. This facilitates stacking and the dispensing of the bags which is particularly useful in automatic production systems. Alternatively, a number of bags may be block sealed together.

An embodiment of the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a sectional view through a folded sheet of plastics material arranged in accordance with an intermediate step in the production of a bag in accordance with the present invention;

Figures 2 and 3 are perspective views of opposite sides respectively of the folded sheet shown in Figure 1 after partial expansion to clarify the drawings;

Figure 4 is a perspective view of an embodiment of the invention after having being filled;

Figure 5 is a view similar to Figure 2 of a second embodiment of the present invention;

Figure 6 is a perspective view of a series of the folded arrangements illustrated in Figure 5 block sealed together; and

Figures 7 and 8 show alternative handle arrangements to that of Figure 4.

Referring to Figures 1 to 3, this illustrates an intermediate stage in the production of the bag in accordance with the present invention. In this intermediate stage, a single sheet of plastics material has been folded to define a front wall 1, a rear wall 2, and a bottom gusset 3 which links lower edges of the front and rear walls.

An upper gusset 4 is formed on the upper edge of the rear wall 2, the width of the gusset 4 being equal to the width of the gusset 3. The gusset 4 does not however extend to the upper edge of the front wall 1 but rather has formed thereon a free flap 5. An adhesive strip 6 covered by release tape is secured to the inner face of the front wall 1. The adhesive strip 6 extends parallel to the upper edge of the front wall 1. It will be appreciated that the adhesive strip 6 could be secured to the flap 5 rather than the wall 1.

Slits 7 extend through the front wall 1 and the adhesive strip 6. These cuts make it easier to separate the release tape from the adhesive strip 6 when such separation is desired. Broken lines 8 and 9 indicate the position at which heat seals will be made during a subsequent production step, the heat seals uniting the front wall 1 and the rear wall 2 and any intermediate components. It will be noted that the slits 7 are disposed between the lines 8 and 9 and thus the fact that the adhesive strip 6 extends the full width of the front wall 1 and is trapped by the subsequently effected seals does not impair removal of the release tape from the adhesive strip 6. Broken lines 10 indicate the position at which handle apertures will subsequently be cut in the front and rear walls on the side of the heat seal line 9 remote from the heat seal line 8. A seal 11 is also made along the edge of the bag.

Referring now to Figure 4, this shows an embodiment of the invention made from the sheet material illustrated in Figures 1 to 3 after it has been heat sealed along its two edges and filled with a bulky article such as a duvet. The same reference numerals are used in Figure 4 as in Figures 1 to 3 where appropriate. As shown in Figure 4, after the bag is filled by pushing an article past the gusset 4 between the front and rear walls 1 and 2, the gusset 4 is pulled out and the flap 5 is pushed between the article within the bag and the

front wall 1. This extends the gusset 4 so that it covers the article.

The release tape is then removed from the strip 6 and the upper edge of the wall 1 is pressed against the flap 5. The front wall 1 and flap 5 are thus secured together and the content of the bag is fully protected against contamination.

Referring to Figure 5, this shows an embodiment of the invention in an intermediate stage of its production similar to that illustrated with reference to Figures 1 to 3. The same numerals are used in Figure 5 as in Figures 1 to 3 where appropriate. In the embodiment of Figure 5 however the upper edge of the front wall 1 is extended upwards to provide an area in which holes 12 are punched. In a conventional manner, the bag may be suspended on the holes 12 by inserting wicket pins therethrough. Supporting the bags in this manner facilitates handling and in particular stacking and dispensing in automatic production lines. The extended front wall of the bag is serrated along line 13 to facilitate removal of the bag from the wicket pins.

With reference to Figure 6, this shows in exploded form a series of components of the type illustrated in Figure 5 which are block sealed together. Again this can be useful to simplify dispensing and automatic handling. The adjacent components could be block sealed together using for example hot pins in a conventional manner. Again, the extended front wall is serrated along line 13.

In the arrangements illustrated in Figures 1 to 6, handles are formed by punching simple apertures 10 in an appropriate side portion of the bag. Alternative handle arrangements may of course be provided. For example in the case illustrated in Figure 7, a rigid plastic handle 14 is provided. The plastics handle may itself form the connection between the front and rear walls 1 and 2. In the arrangement of Figure 8, a simple C cut handle formation 15 is provided.

It will be appreciated that the described bags can be formed from single sheets of plastic material, tubes of plastics material appropriately folded and slit, or a series of separate sheets of plastics material welded together as appropriate. Any suitable material can be used, for example high or low density polyethylene, linear low density polyethylene, polypropylene or PVC. The bags

produced can provide a high degree of protection to their contents and are suitable for receiving bulky goods such as curtains, disposable nappies, pillows, duvets, sleeping bags or the like. The final bag shape after filling will of course be dependent upon the nature of the filling material and the precise shape of the gussets and side seal. It will be appreciated that substantially round or square cross-section filled shapes could be provided to meet customer demands.

The adhesive strip used to secure the flap 5 to the front wall 1 and hence to secure the gusset 4 over the contents of the bag may be of the releasable type, enabling opening of the bag for inspection and subsequent closure, or maybe of a type such that the bag can only be opened if it is accepted that permanent damage will be done to its structure.

CLAIMS:

1. A flexible bag comprising a front wall, a rear wall and a bottom gusset linking a lower edge of the front wall to a lower edge of the rear wall, side edges of the front and rear walls being interconnected such that an open-top compartment is defined between the walls, wherein an upper gusset is formed on an upper edge of the rear wall, and a flap is formed on the edge of the upper gusset remote from the rear wall.
2. A flexible bag according to claim 1, wherein means are provided to adhere the flap to the front wall after filling of the compartment.
3. A flexible bag according to claim 2, wherein the adhering means comprises an adhesive strip extending adjacent an upper edge of the front wall.
4. A flexible bag according to claim 2 or 3 wherein, the adhering means comprises an adhesive strip secured to the flap.
5. A flexible bag according to claim 3 or 4, wherein the adhesive strip is provided with a removable cover strip which is removed after filling of the compartment.
6. A flexible bag according to any preceding claim, wherein a handle is provided along one of the side edges of the bag.
7. A flexible bag according to any preceding claim, wherein the upper edge of the front wall extends beyond the upper edge of the rear wall to provide an area in which holes may be punched.
8. A flexible bag according to claim 7, wherein the extended front wall is serrated along a line substantially parallel with the upper edge of the front wall and above the level of the upper edge of the rear wall.

9. A flexible bag according to any preceding claim, wherein the bag is formed from a plastics material.

10. A flexible bag substantially as hereinbefore described with reference to Figs. 1 to 4, 5 and 6, 7 or 8 of the accompanying drawings.

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Patents Act 1977
Examiner's report to the Comptroller under
Section 17 (The Search Report)

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Relevant Technical fields

(i) UK CI (Edition K) B8K (KAB, KBA: KXX KX)

(ii) Int CL (Edition 5) B65D 30/10 30/20 33/18 33/20

Search Examiner

G NICHOLLS

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

12 JUNE 1992

Documents considered relevant following a search in respect of claims

1-10

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2128164 A (BXL PLASTICS) Whole document	1,7,9
X	GB 1604156 (CLAXTON) See especially Figure 8	1-4,9
X	GB 1086690 (LA CHARFA) See especially Figure 1	1,9
X	GB 840350 (BEMIS)	1,9

Category	Identity of document and relevant passages	Relevant to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

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